

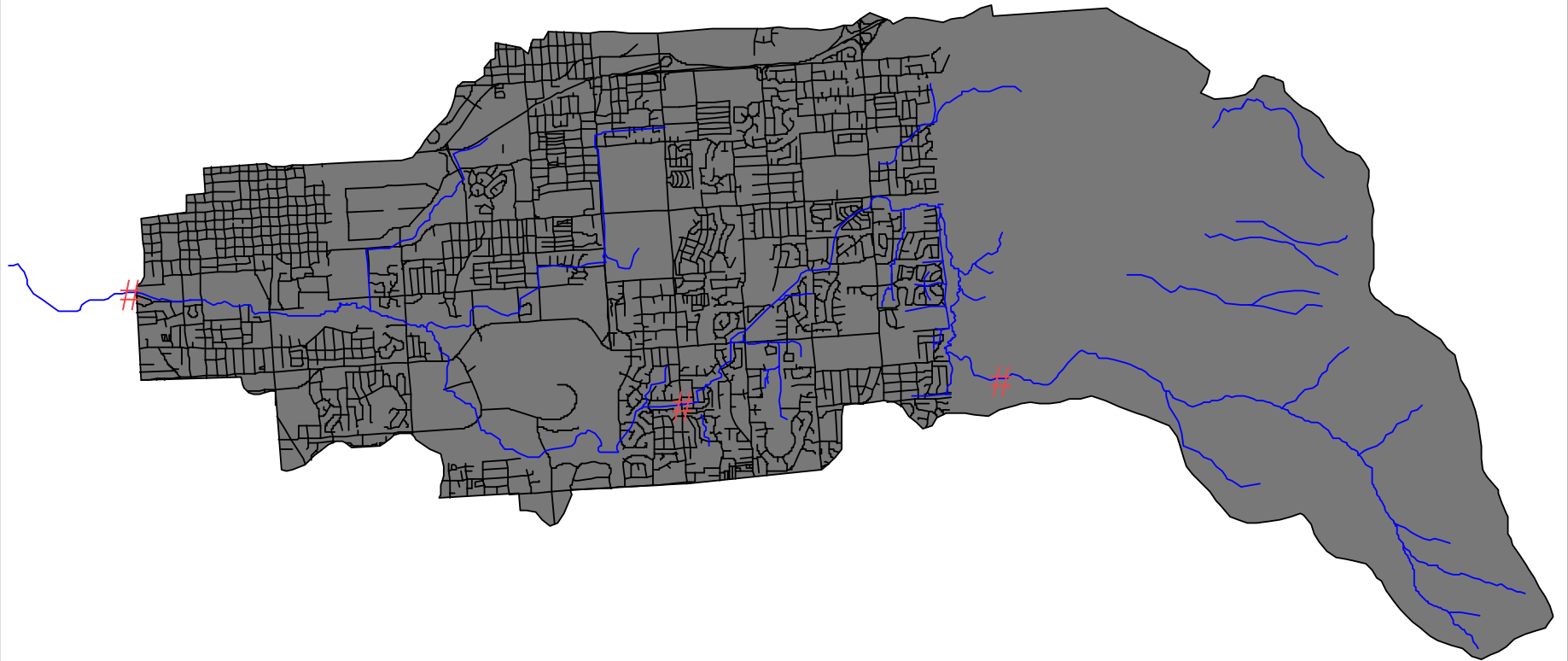


# Effects of Urbanization on Salmonids in Chester Creek



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# Chester Creek Basin





A photograph of a small stream flowing under a wooden bridge. The bridge is made of weathered wood and has a simple railing. In the foreground, there is a large clump of tall, dry grass and a fallen log floating in the water. The surrounding area is lush with green foliage and trees. The text "CH1" is overlaid in the bottom right corner in a yellow, serif font.

CH1





CH2

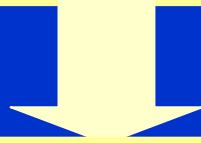




CH3



**Urbanization**



**Habitat**



**Fish**

**H**

**A**

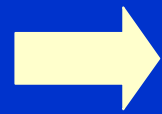
**B**

**I**

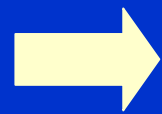
**T**

**A**

**T**



**Instream Structure**



**Benthic Environment**



**Water Environment**



**Riparian Structure**





# Backwater Pool



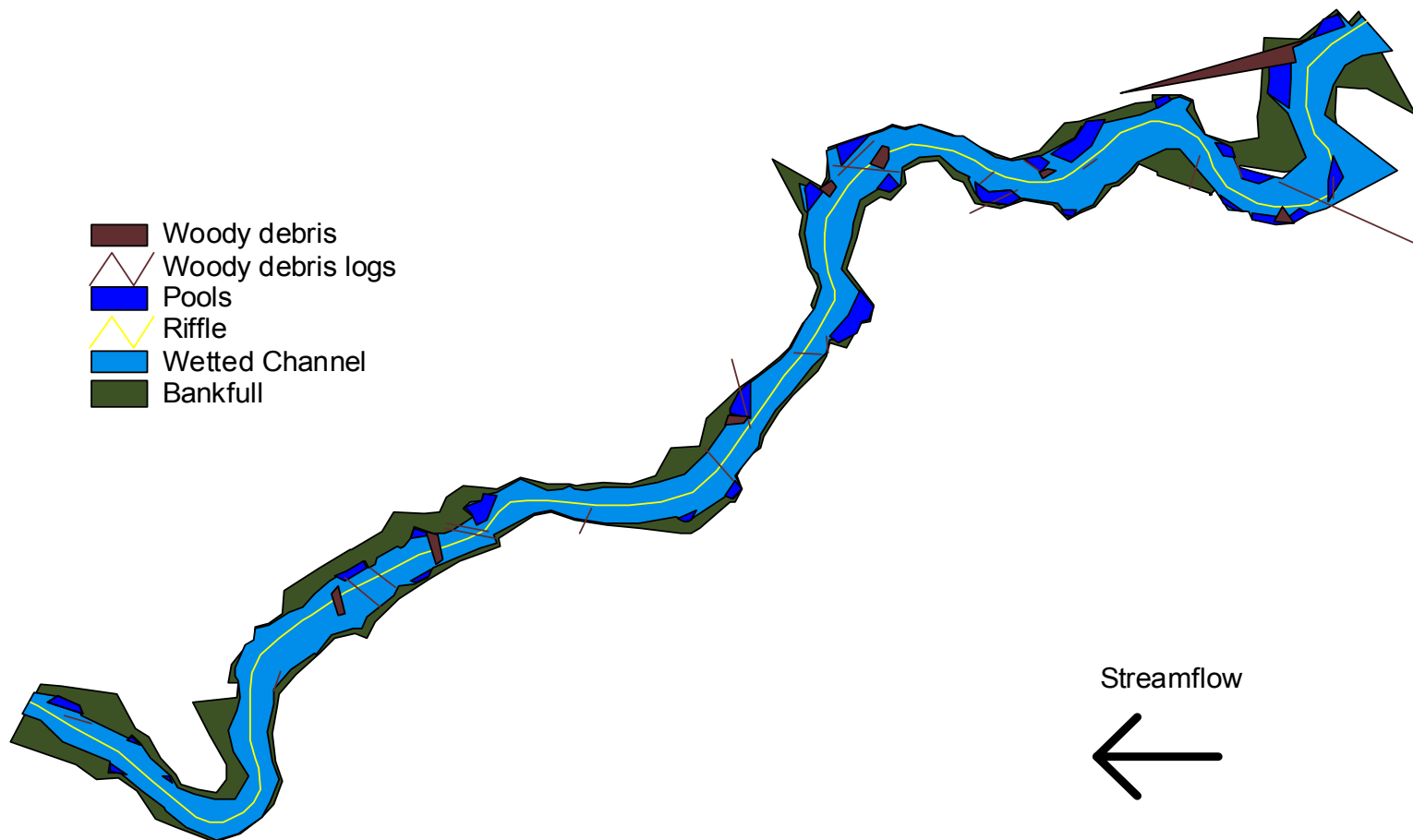




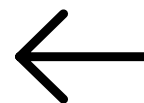
# CH1



- Woody debris
- Woody debris logs
- Pools
- Riffle
- Wetted Channel
- Bankfull

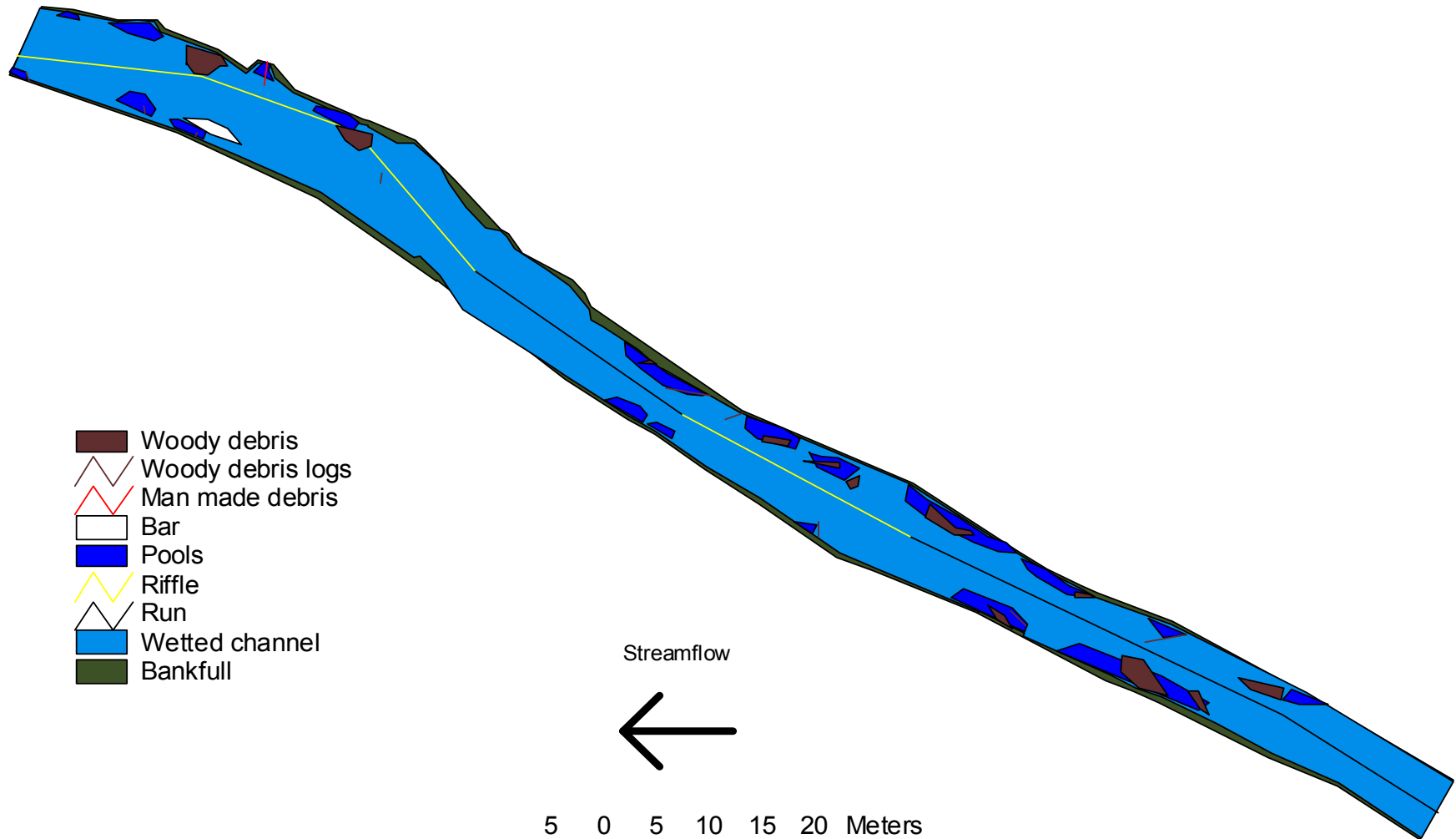


Streamflow

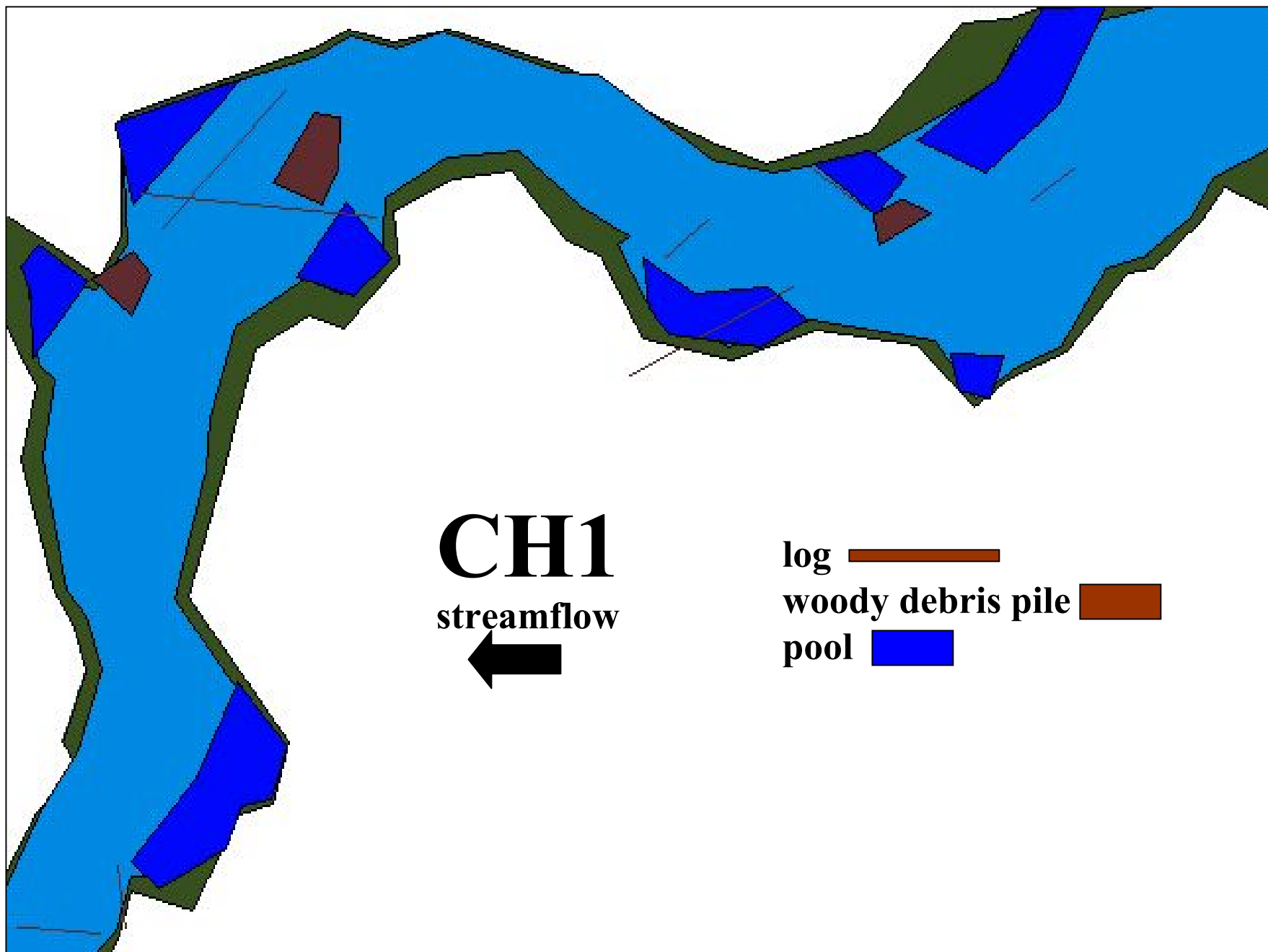


5 0 5 10 15 20 Meters

# CH3







# CH3

streamflow



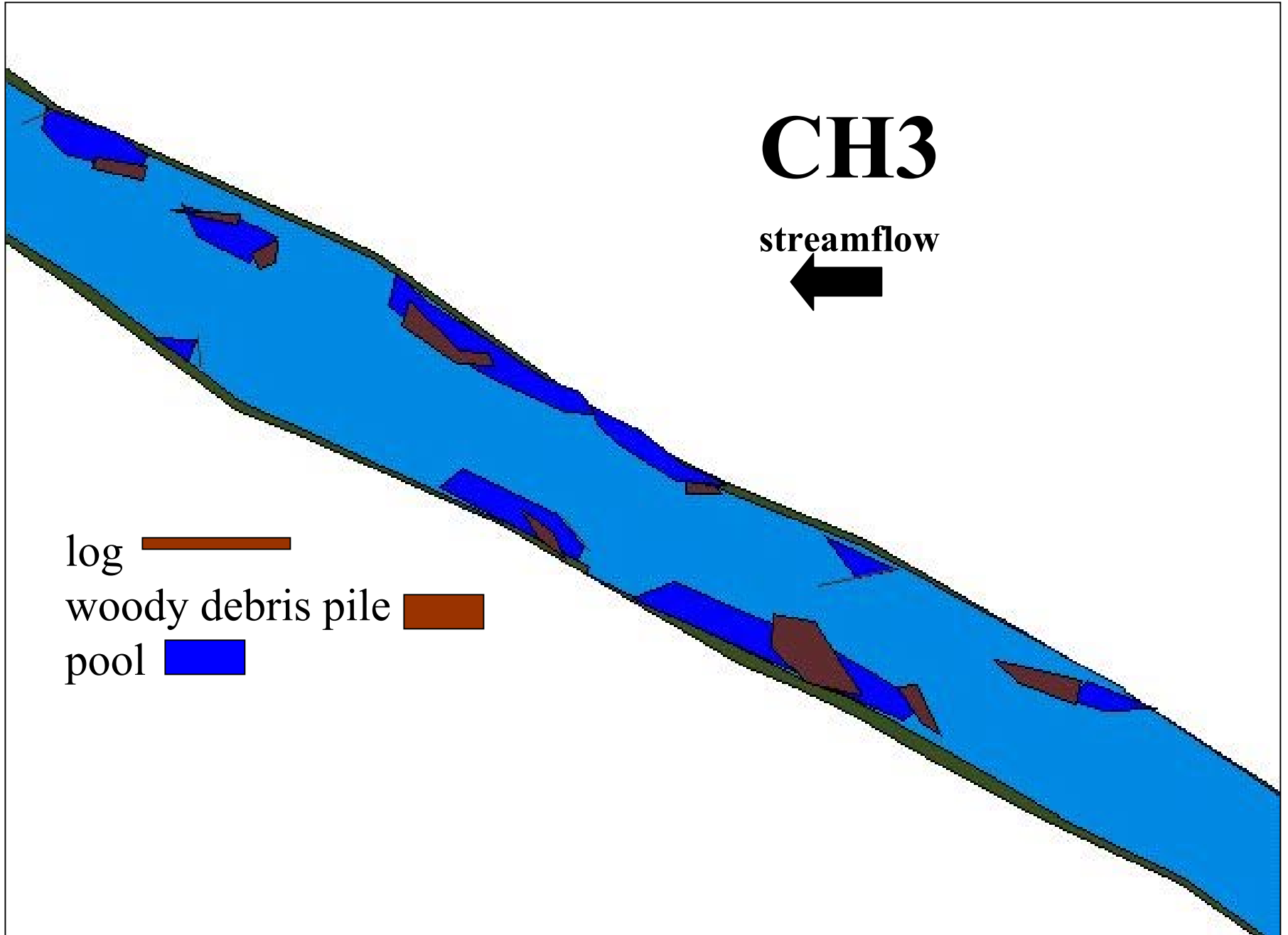
log



woody debris pile

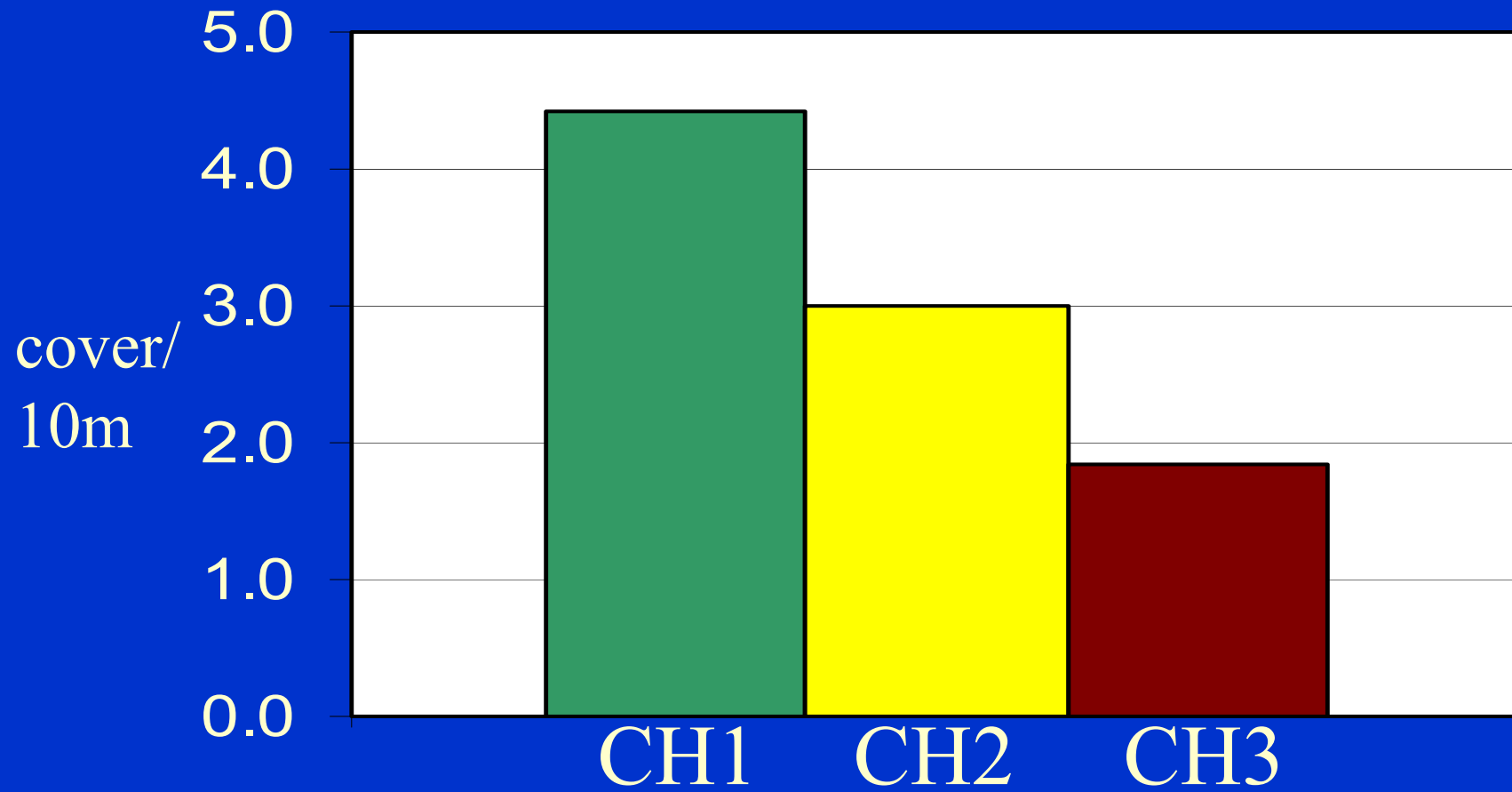


pool

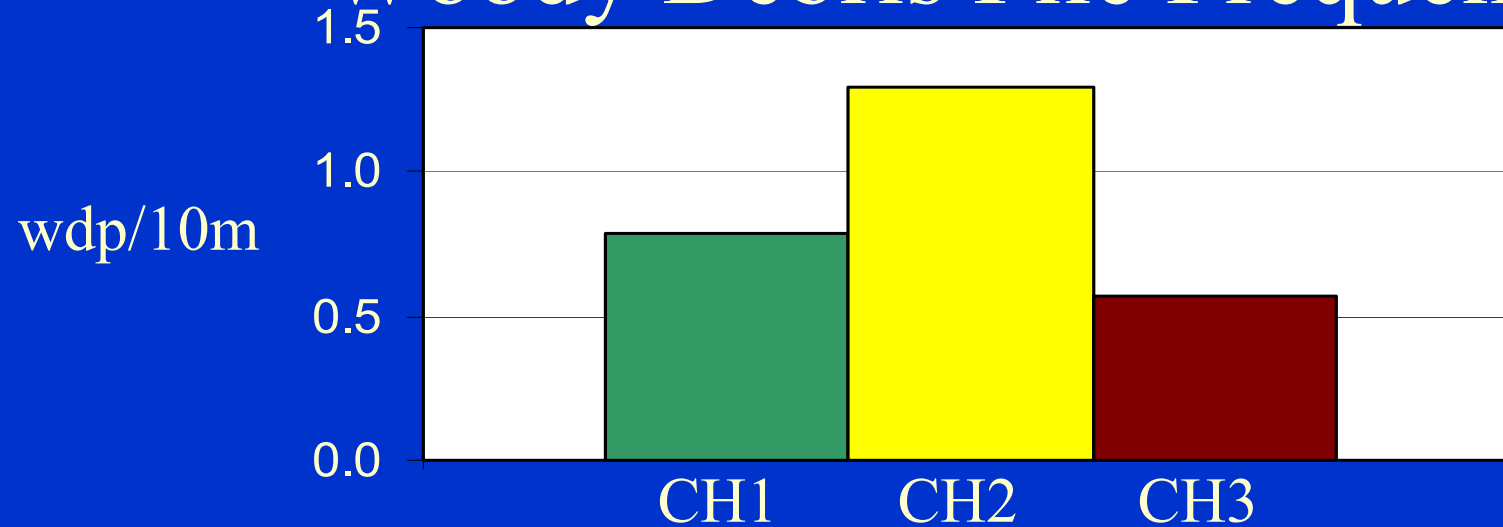




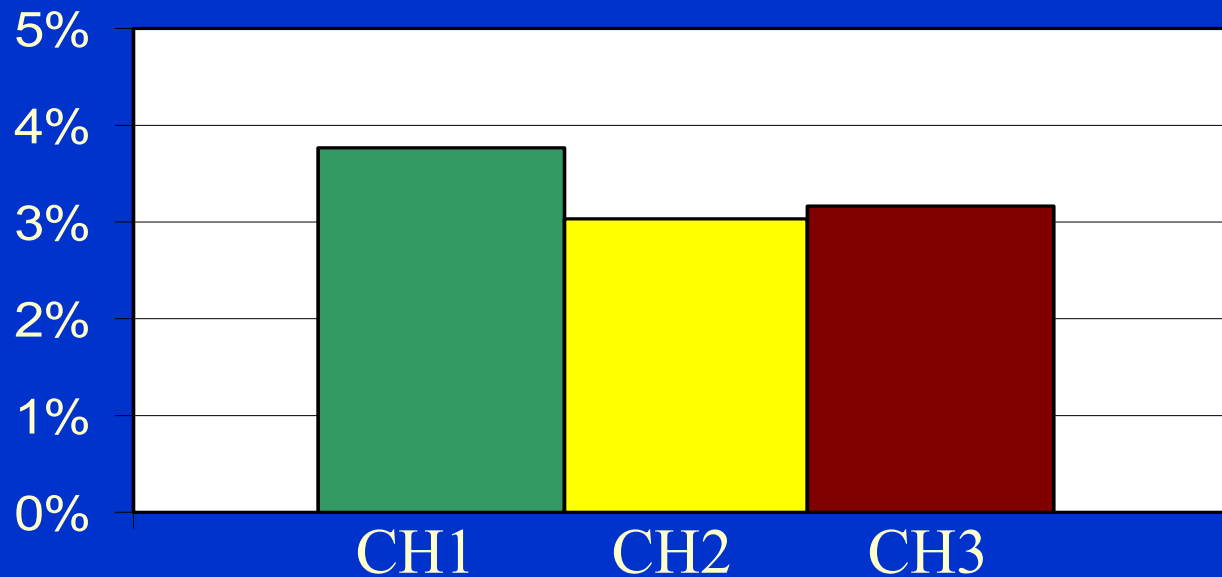
# Cover Frequency



# Woody Debris Pile Frequency

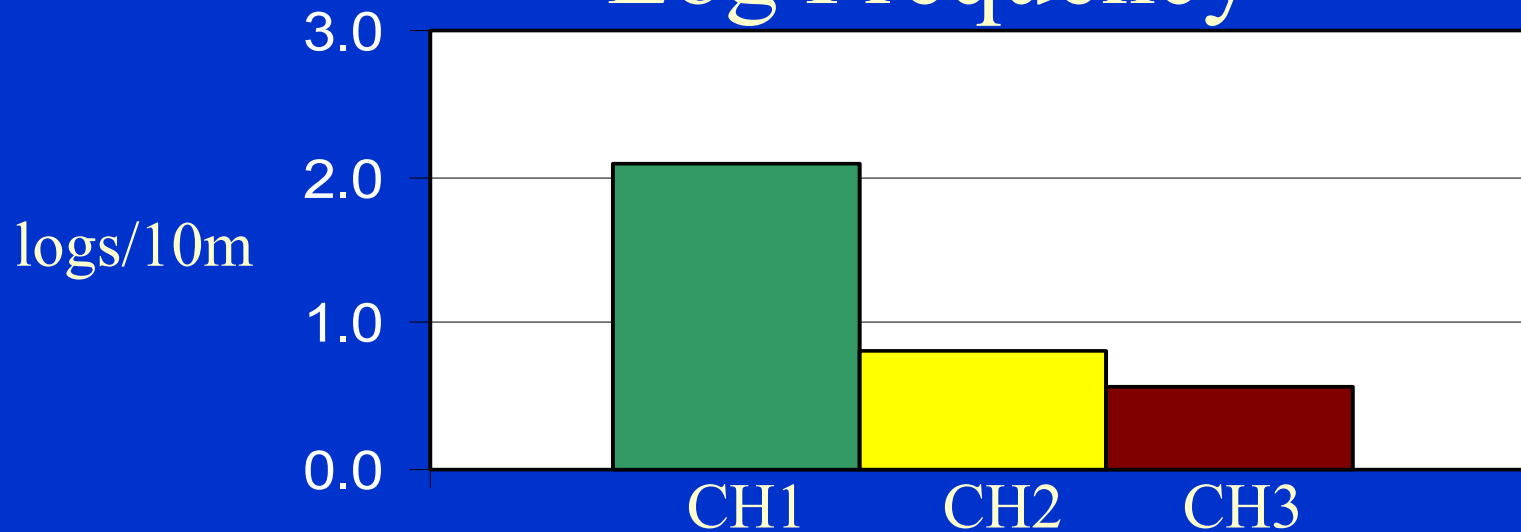


# Area as Woody Debris Piles

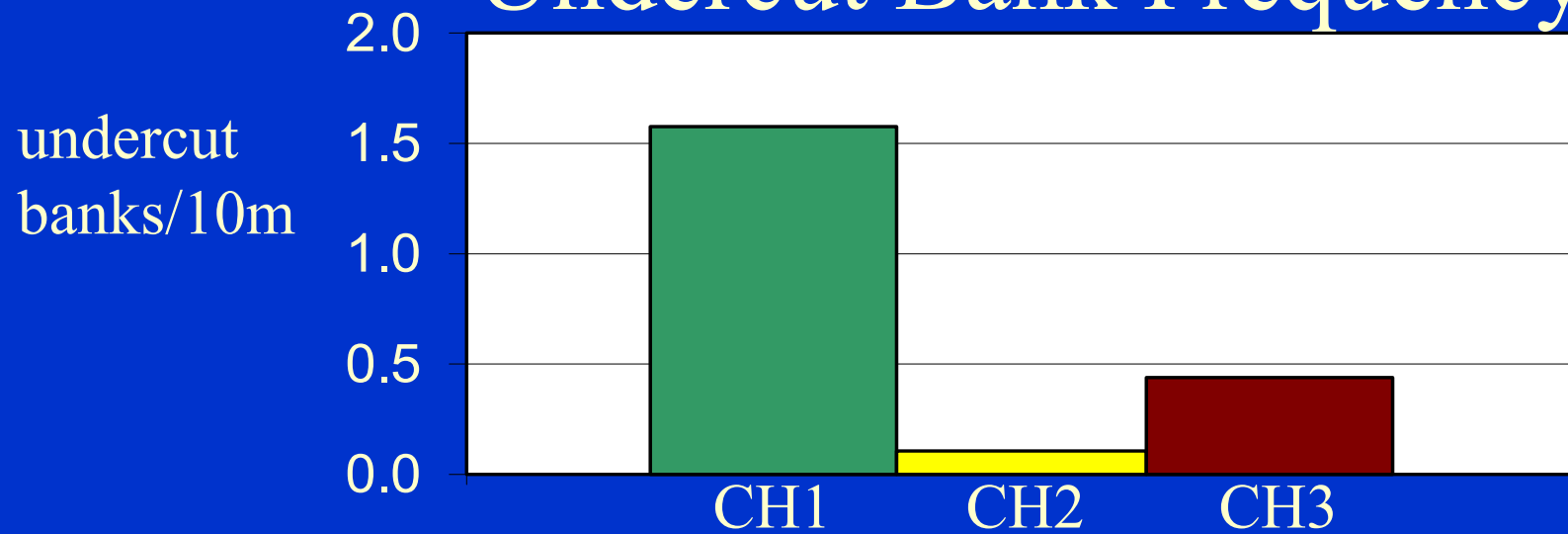




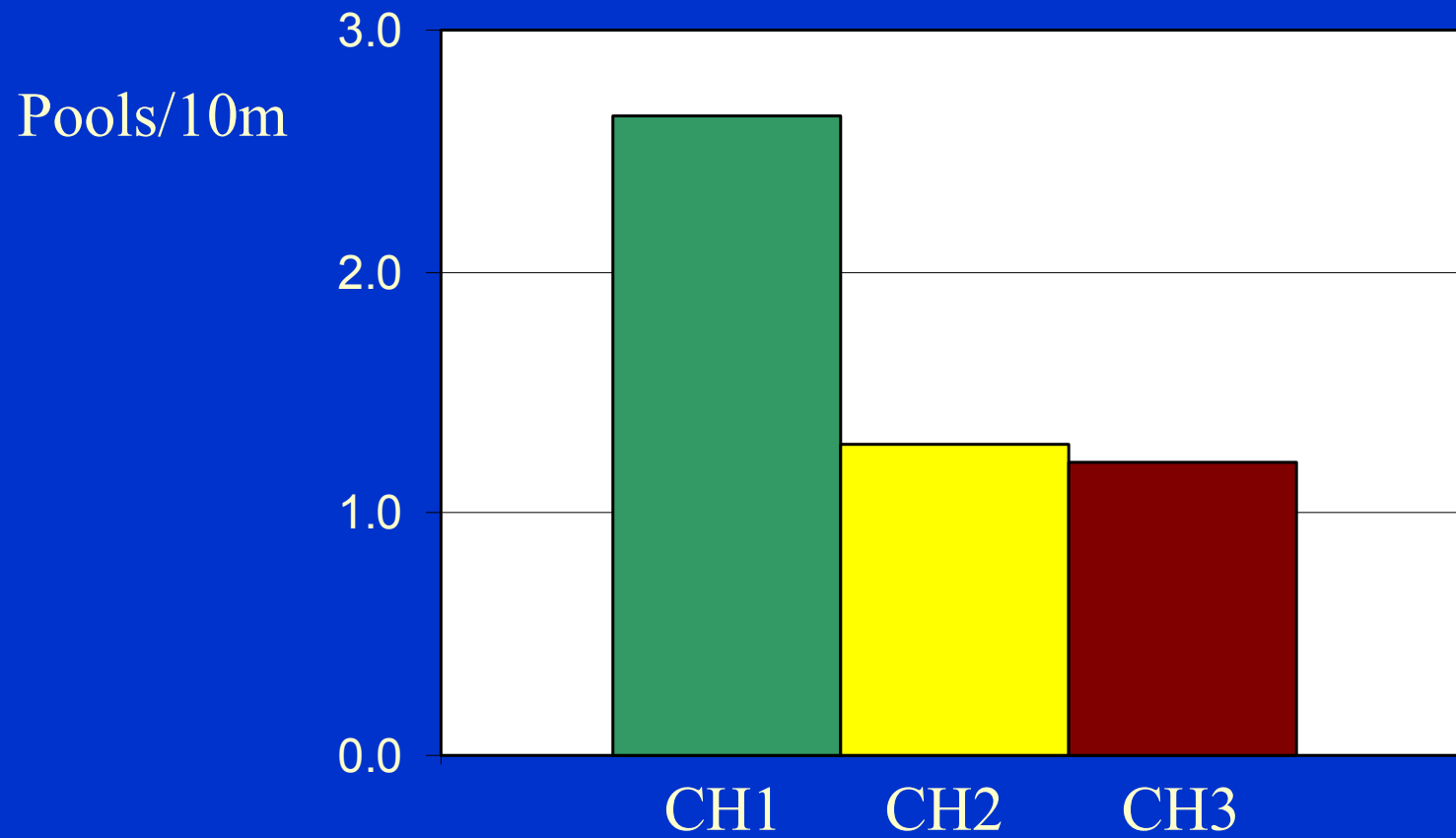
## Log Frequency



## Undercut Bank Frequency

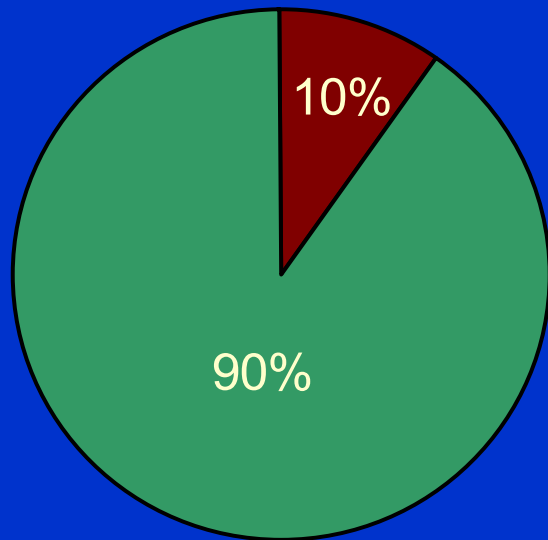


# Pool Frequency

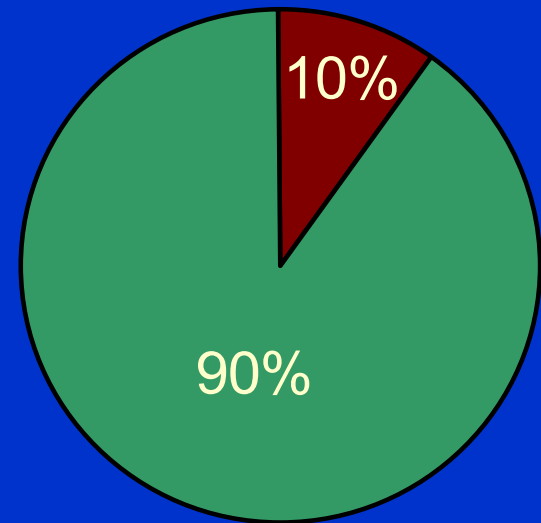




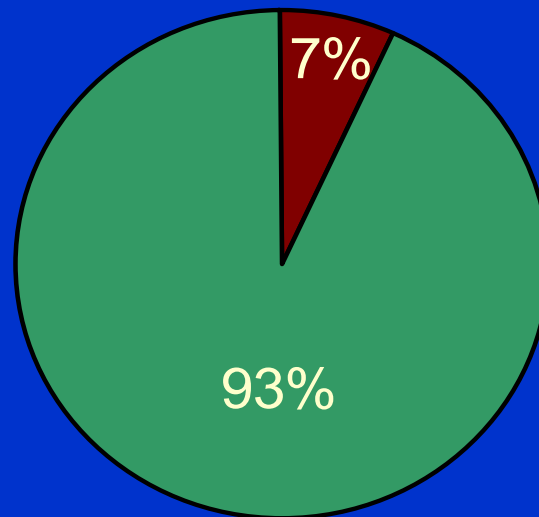
**Pool**  **Non-Pool** 



**CH1**



**CH3**

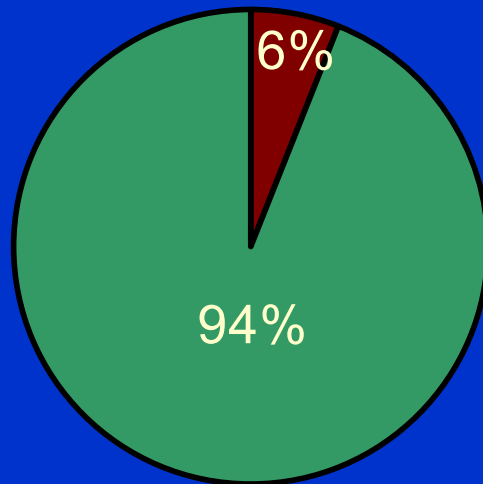


**CH2**

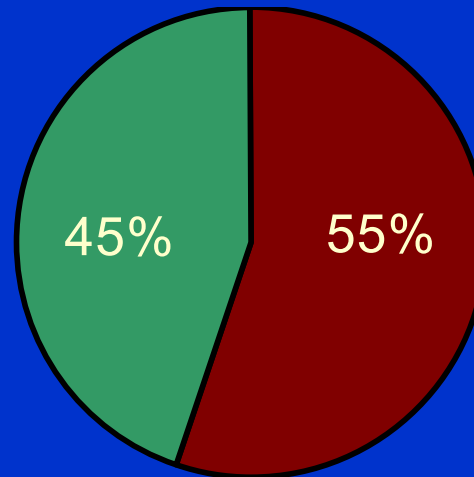
**> 20% Embedded**



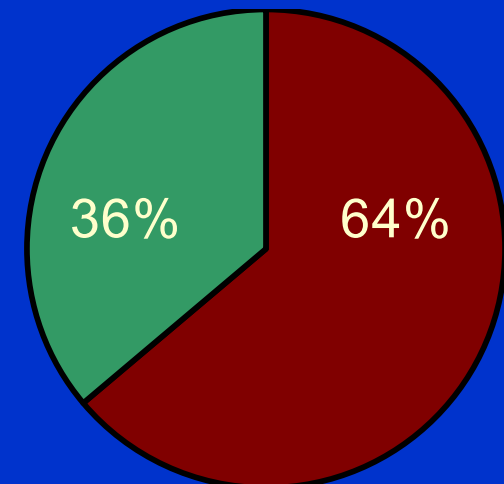
**< 20% Embedded**



**CH1**



**CH2**



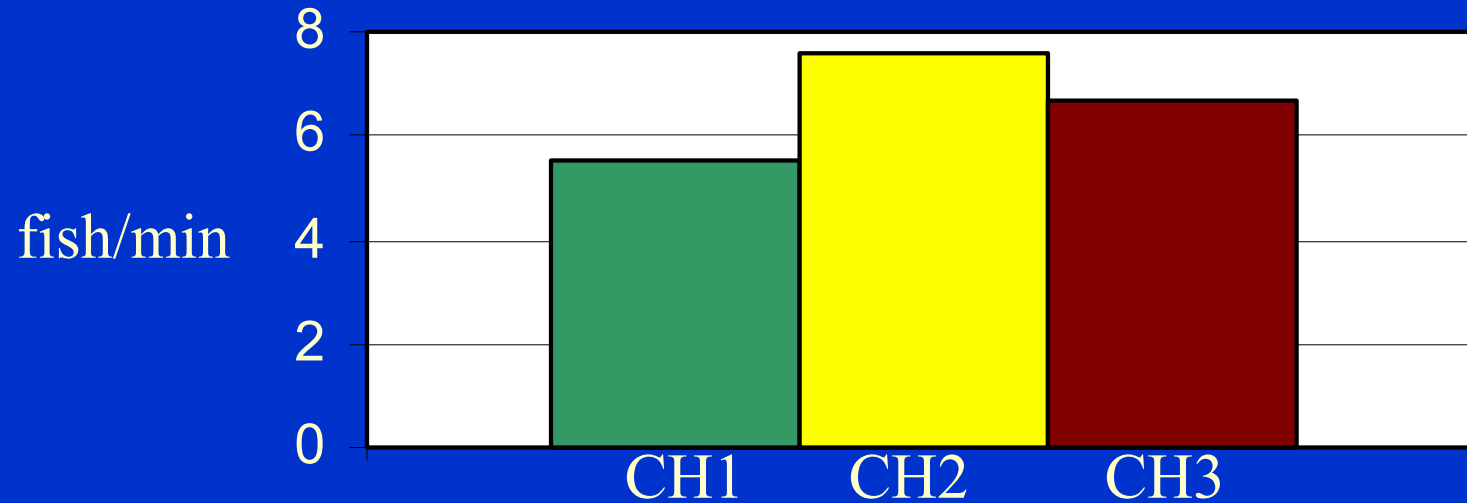
**CH3**



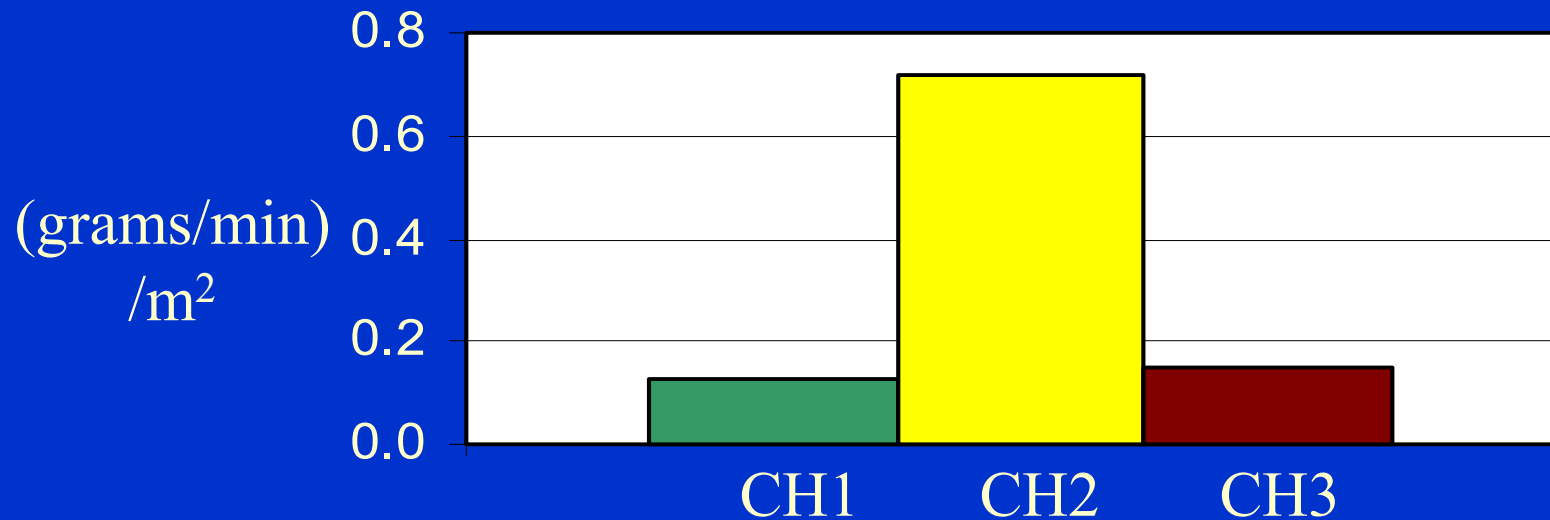
# Preliminary Habitat Results

- Amount of total rearing (pool) habitat is similar at urban and non-urban sites
- Amount of high quality rearing habitat (pools w/cover) is much greater at non-urban site
- Amount of total cover decreases as urbanization increases
- Spawning habitat appears degraded in urban areas compared to nonurbanized area

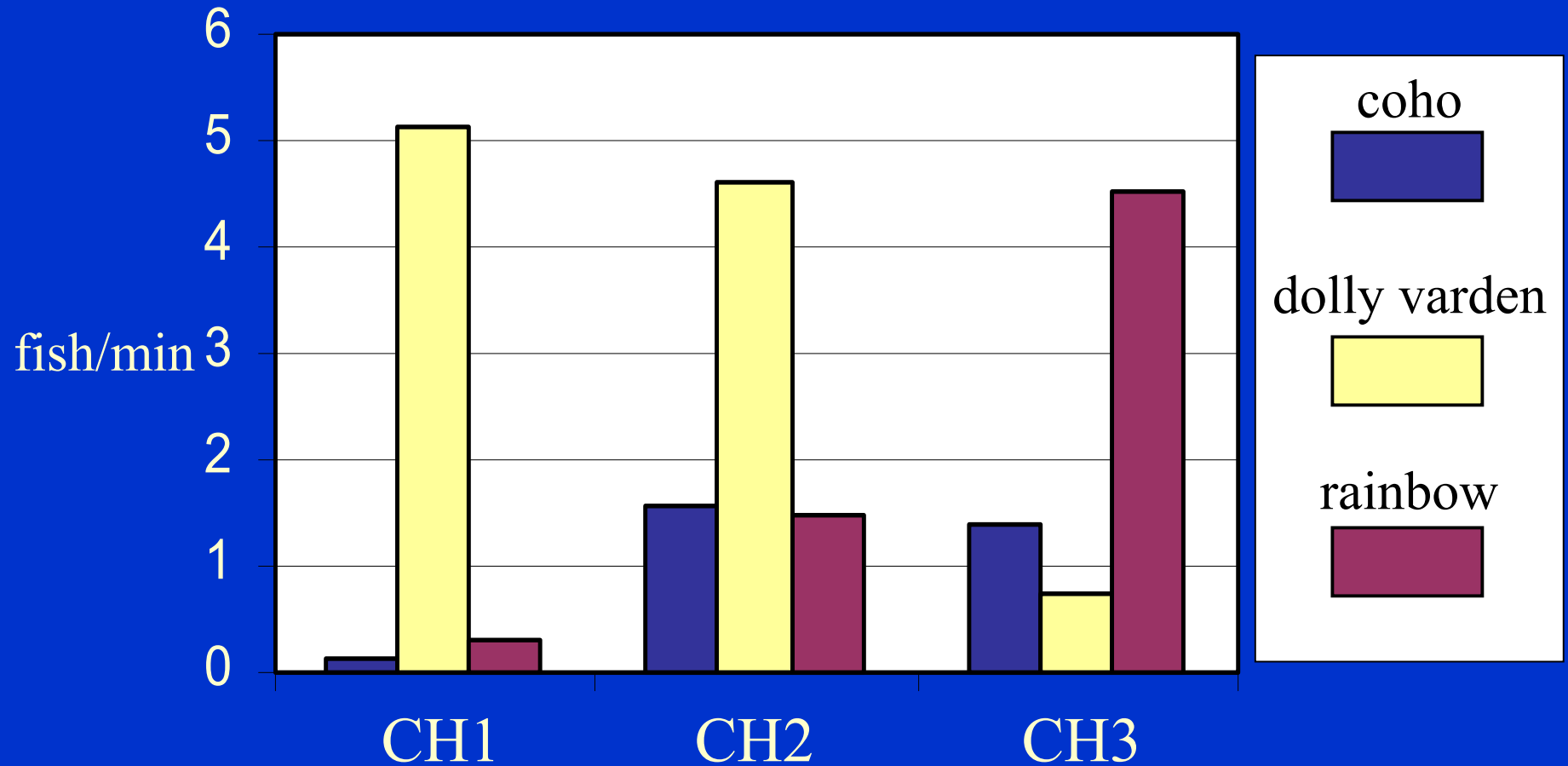
# Salmonid Abundance Index



# Salmonid Biomass Index



# Abundance Index by Species





# Preliminary Salmonid Results

- Overall abundance not negatively effected by urbanization
- Overall biomass not negatively effected by urbanization; production may be enhanced at moderate urbanization levels
- Urbanization may be related to spatial and temporal differences in species composition
  - Dolly Varden
  - Coho



**Conclusions?**